

1200 Series IP Video Storage System



BOSCH

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1 Safety Instructions

1.1 Overview

This chapter provides a quick setup checklist to get your chassis up and running. Following the steps in the order given should enable you to have your chassis setup and operational within a minimal amount of time. This quick setup assumes that you are an experienced technician, familiar with common concepts and terminology.

1.2 Warnings and Precautions

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage, file a damage claim with carrier who delivered your system.

Avoid areas where heat, electrical noise and electromagnetic fields are generated. Position the chassis near at least one grounded power outlet.

1.3 Preparing for Setup

The 1200 Series chassis contains many features that are unique to the 1200 Series chassis model. Read this manual in its entirety before beginning the installation procedure.

1.4 Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the 1200 Series from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.
- Do not work alone when working with high voltage components.
- Power should always be disconnected from the system when removing or installing main system components, such as the serverboard, memory modules and optical device drives. When disconnecting the power, you should first power down the system with the operating system and then unplug the power cords from all the power supply modules in the system.
- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power, if necessary.
- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.
- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.
- The power supply power cord must include a grounding plug and must be plugged into a grounded electrical outlet.
- Serverboard battery: CAUTION - There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarities. This battery must be replaced only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- DVD-ROM laser: CAUTION - This server may have come equipped with a DVD-ROM drive. To prevent direct exposure to the laser beam and hazardous radiation exposure, do not open the enclosure or use the unit in any unconventional way.

1.5 General Safety Precautions

- Keep the area around the chassis clean and free of clutter.
- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.
- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.
- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.
- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

1.6 System Safety

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.
- Use a grounded wrist strap designed to prevent static discharge.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

2 System Overview

1200 Series chassis features a unique and highly-optimized design, allowing most configuration of the chassis to be accomplished without tools or screws. The chassis is equipped with high-efficiency power supply. High-performance fans provide ample optimized cooling for FB-DIMM memory modules, and four hot-swap drive bays offer maximum storage capacity.

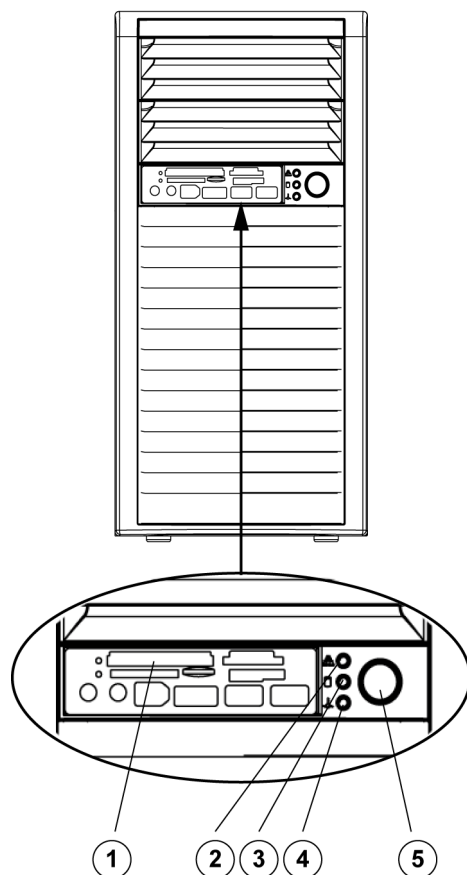
For information on supported hardware, see the datasheet for the 1200 Series in the Bosch Online Product Catalog.

For more detailed technical information on your device refer to <http://www.supermicro.com/support/manuals/index.cfm>.

There you can download a manual for a 731 model.

3 System Interface

There are several LEDs on the control panel as well as others on the drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. The 1200 Series has a power on/off switch, located on the control panel. This chapter explains the meanings of all LED indicators and the appropriate responses you may need to take.



1	All-in-One Card Reader
2	NIC LED
3	HDD LED
4	OH LED
5	Power Button

3.1 Control Panel Buttons

Power: The main power button is used to apply or remove power from the power supply to the system. When the power is on, the power button will be lighted by a blue LED. Turning off the system power with this button will cause the blue LED to turn off and will remove the main power, but will keep standby power supplied to the system. Therefore, you must unplug system before servicing the system.



3.2 Control Panel LEDs

The control panel located on the front of the 1200 Series chassis has three LEDs. These LEDs provide you with critical information related to different parts of the system. This section

explains what each LED indicates when illuminated and any corrective action you may need to take.

HDD: Indicates IDE channel activity. SAS/SATA drive activity when flashing.



NIC1: Indicates network activity on GLAN1 / 2 when flashing.



Overheat/Fan Fail: This LED indicates a fan failure when flashing.

When Continuously On (not flashing): This LED indicates an overheat condition caused by cables obstructing the airflow in the system or the ambient room temperature being too warm.



Correcting an Overheat/Fan Fail Condition

1. Check the routing of the cables and move any cables that restrict airflow.
2. Confirm that all fans are operating normally.
3. Verify that the heatsinks are installed properly.
4. If the chassis cover is not aligned correctly, the airflow may be disrupted. This leads to overheating. Confirm that the chassis cover is placed correctly.
5. This LED will remain active as long as the overheat condition exists.

4 Installation

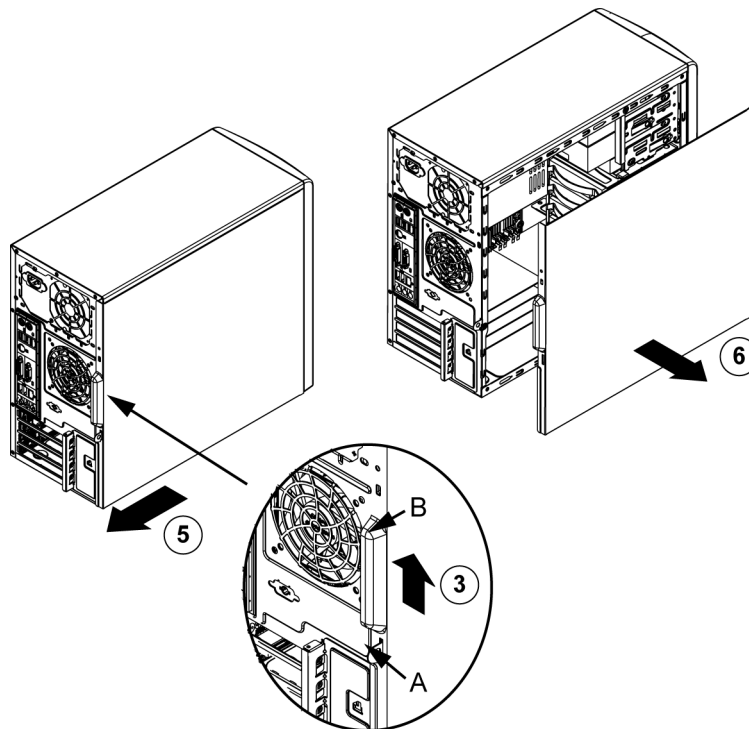
The systems comes pre-installed and only hard drives may be exchanged onsite. In case of any other failure the entire system has to be exchanged (by advanced exchange).

5 Chassis Setup and Maintenance

This chapter covers the steps required to install components and perform maintenance on the chassis. Most components of the 1200 Series do not require tools or screws to set them up. Those components which must be secured with screws require only a Phillips screwdriver. Print this chapter to use as a reference while setting-up your chassis.

Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter System Safety and the warning/precautions listed in the setup instructions.

5.1 Removing the Chassis Cover



Removing the Chassis Cover

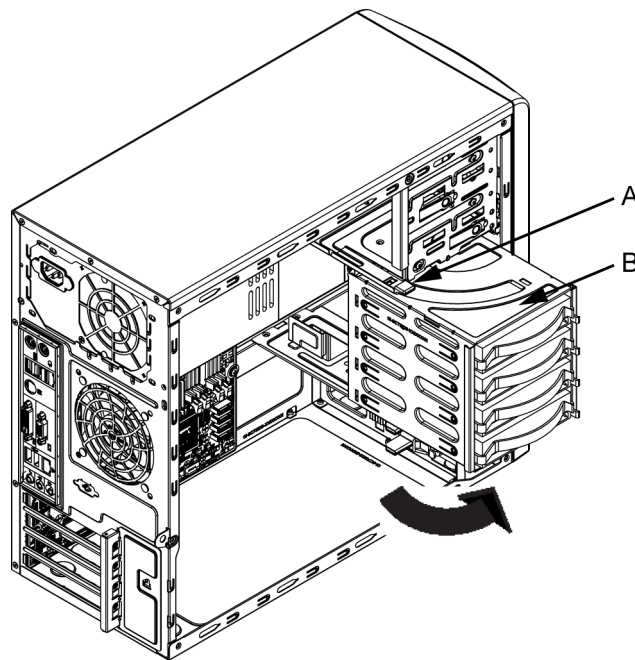
1. Push the power button to turn off the power to the system.
2. Disconnect the chassis from any power source.
3. Slide the release tab (A) towards the cover handle (B).
4. Grasp the cover handle with your fingers.
5. Slide the cover toward the rear of the chassis
6. Remove the cover from the chassis.



CAUTION!

Except for short periods of time, do NOT operate the system without the cover in place. The chassis cover must be in place to allow for proper airflow and to prevent overheating.

5.2 Rotating the Hard Drive Cage



In order to access and install components in the chassis interior, it is necessary to rotate the hard drive cage. This will provide sufficient room to install and configure the chassis components.

Rotating the Hard Drive Cage

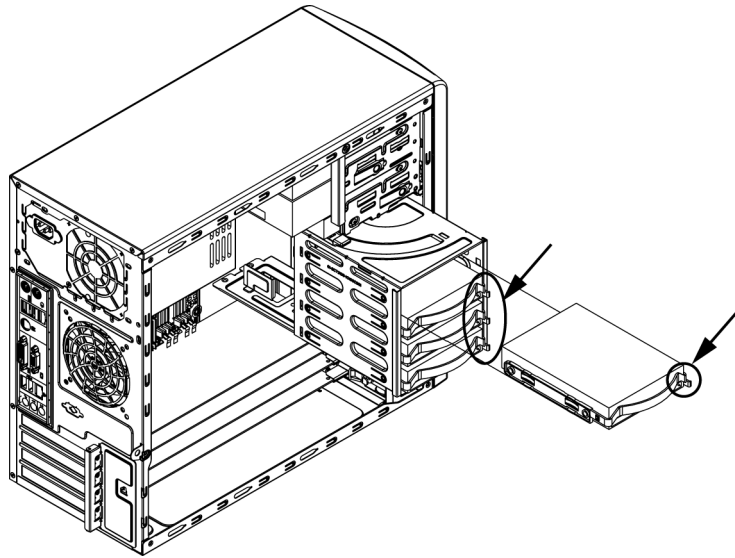
1. Disconnect the chassis from any power source.
2. Lift the release tab (A).
3. Rotate the hard disk drive cage (B) outward.

5.3 Removing and Installing Hard Drives

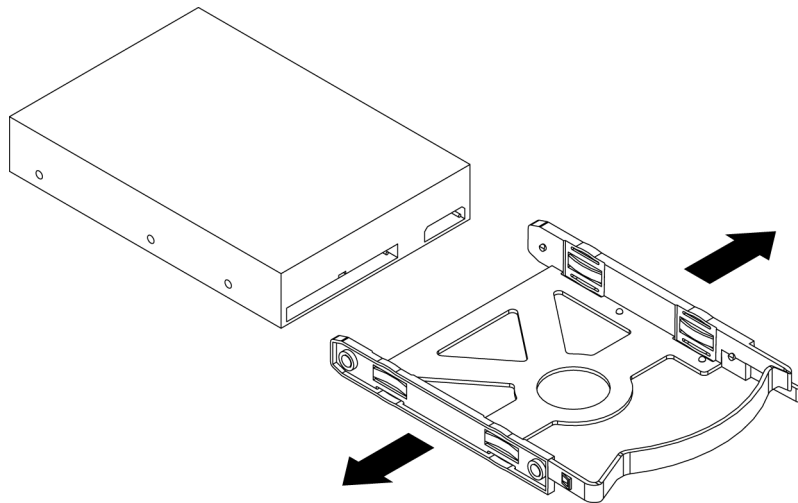
The 1200 Series chassis must be powered-down before hard drives can be removed from the hard drive carriers.

Removing and Installing Hard Drives

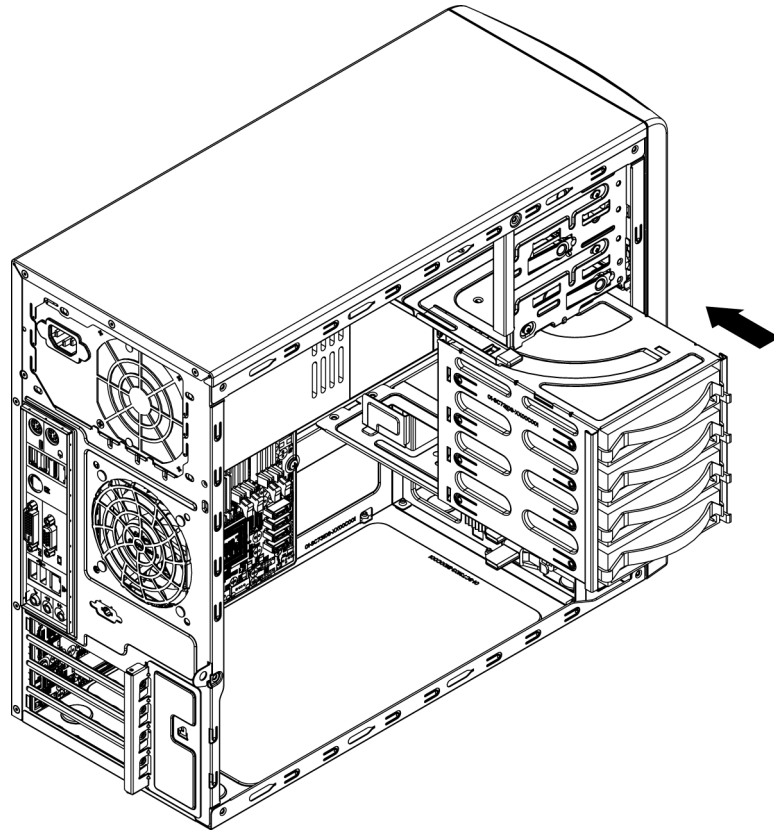
1. Disconnect the chassis from any power source.
2. Rotate the hard drive cage outward 90 degrees as described in section Rotating the Hard Drive Cage.
3. Disconnect all of the cables from the hard drive.
4. Press the release tab on the side of the hard drive carrier that is to be removed from the hard drive cage.



5. Gently slide the hard drive carrier out of the hard drive cage.
6. If a hard drive is already present, remove it by carefully pulling the sides of the hard drive carrier outward.



7. Remove the hard drive from the hard drive carrier.
8. Insert the new hard drive into the hard drive carrier.
9. Insert the hard drive carrier into the hard drive cage, sliding it towards the back of the the hard drive cage until it clicks into a locked position.



10. If desired, each hard drive carrier may be secured to the exterior of the hard drive cage using optional screws.
11. Rotate the hard drive cage 90 degrees inward, returning it to the closed, operational position in the chassis.
12. Connect the related cables to the hard drives.

5.4 Installing the I/O Shield and Motherboard

Motherboard problems will be handled by trained support people only.

5.5 Installing the System Fan

System fan problems will be handled by trained support people only. If the system fan has to be replaced the entire unit will be exchanged (advanced exchange service).

Note: The fan noise of the system is a factor to note. When it occurs, this can be an indication of impending failure of the fan and should be replaced.

5.6 Power Supply

Power Supply Failure problems will be handled by trained support people only. If the power supply has to be replaced the entire unit will be exchanged (advanced exchange service).

A Appendix

A.1 Motherboard layout

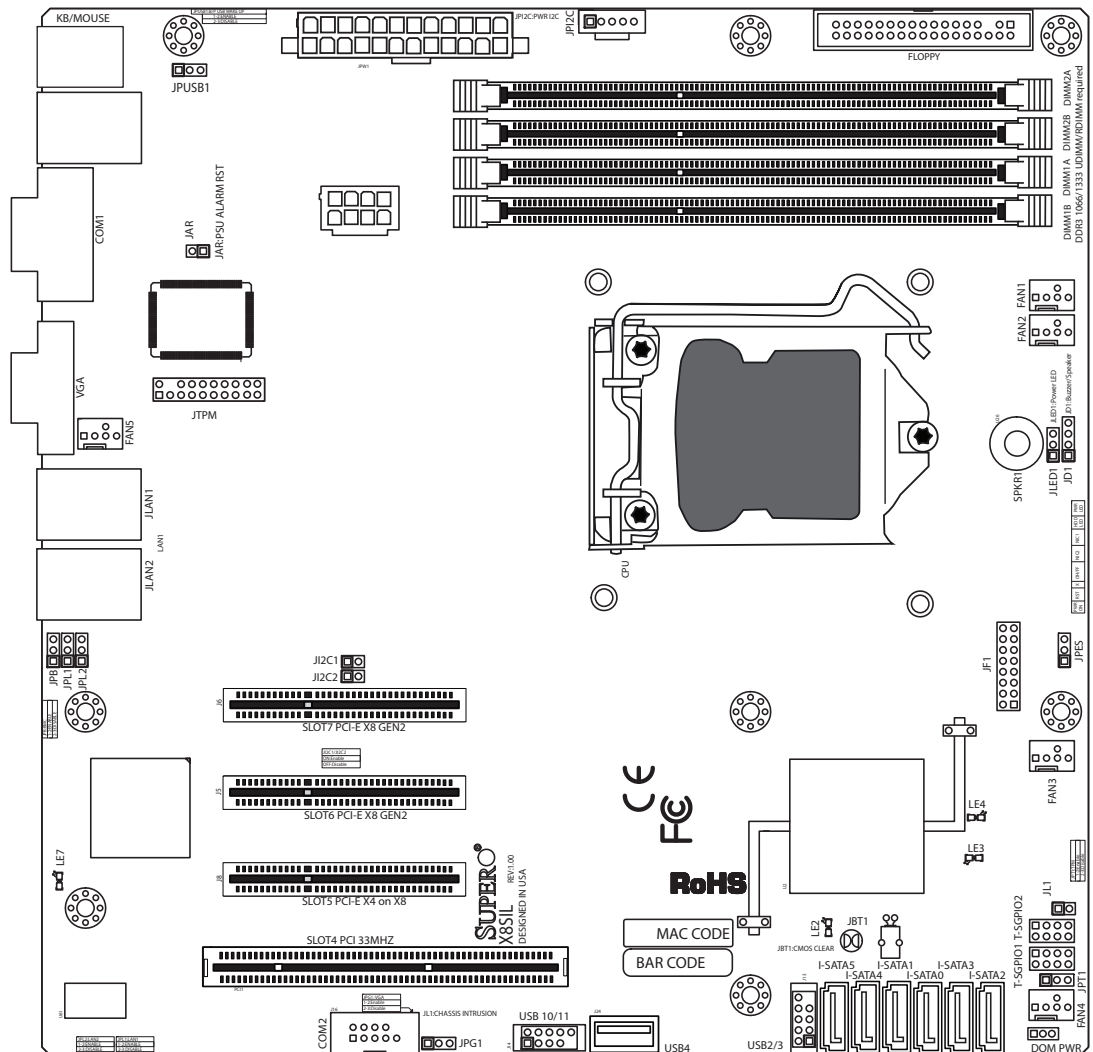
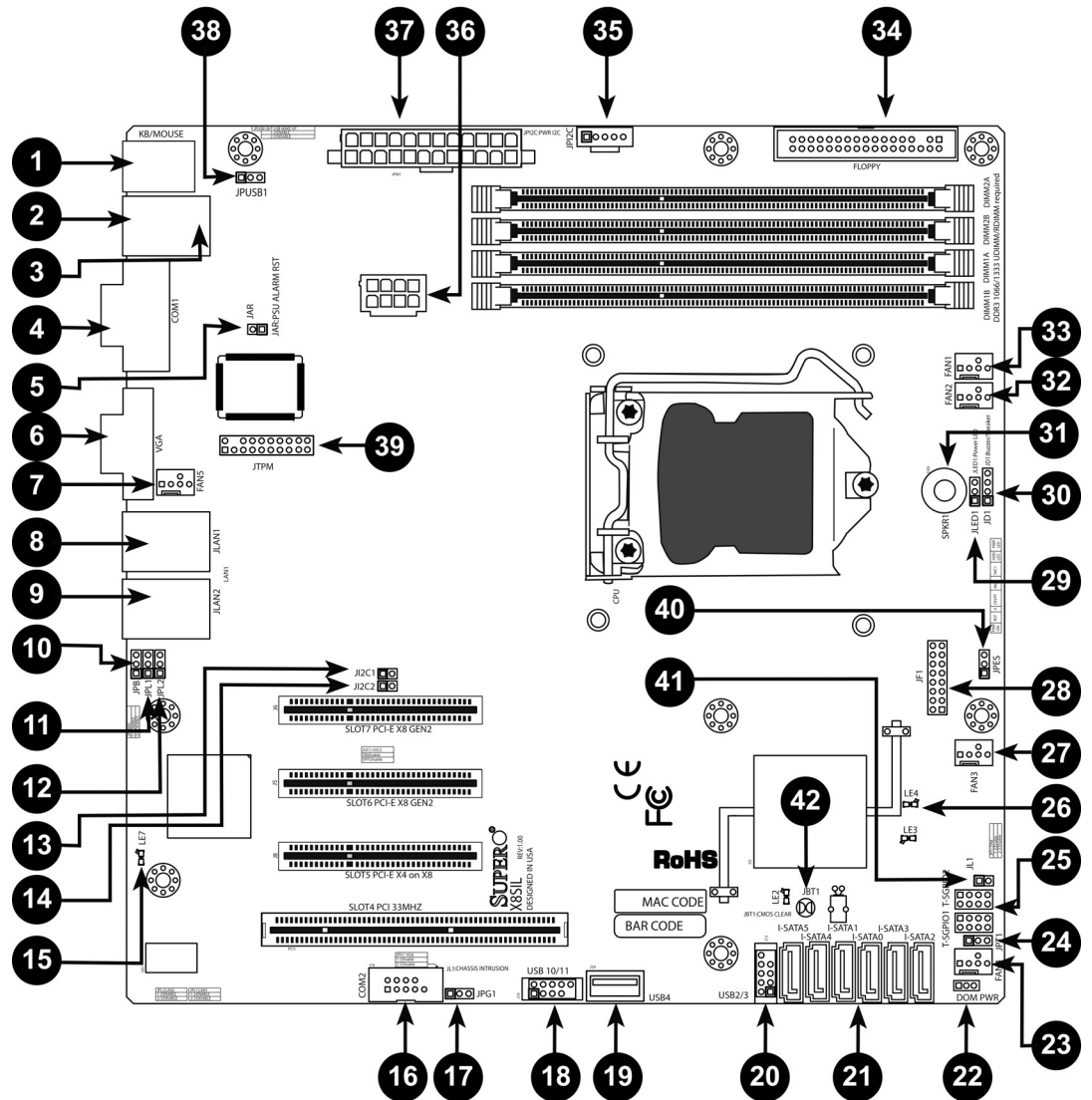


Figure 1.1 Motherboard Layout

Note: All graphics shown in this manual were based upon the latest PCB Revision available at the time of publishing of the manual. The motherboard you've received may or may not look exactly the same as the graphics shown in this manual.

Important Notes to the User

- Jumpers not indicated are for testing only.
- When LE2 (Onboard Power LED Indicator) is on, system power is on. Unplug the power cable before installing or removing any components.



X8SIL/X8SIL-F/X8SIL-V Jumpers

Number	Jumper	Description	Default
38	JPUSB1	BP USB0/1 Wake-up	Pins 1-2 (Enabled)
42	JBT1	CMOS Clear	
40	JPES	Energy Saving Feature	Pins 2-3 (Disabled)
13,14	JI2C1/JI2C2	SMB to PCI Slots	
17	JPG1	Onboard VGA Enable	Pins 1-2 (Enabled)
11,12	JPL1/JPL2	LAN1/LAN2 Enable	Pins 1-2 (Enabled)
24	JPT1	TPM Enable	Pins 1-2 (Enabled)
10	JPB	BMC Jumper	Pins 1-2 (Enabled)

X8SIL/X8SIL-F/X8SIL-V Headers/Connectors

Number	Connector	Description
4,16	COM1/COM2	COM1/2 Serial connection headers
33,32,27,23,7	Fans 1~5	System/CPU fan headers

34	Floppy	Floppy Disk Drive connector
5	JAR	Alarm Reset
30	JD1	Speaker header (Pins 3/4: Internal, 1~4:External)
28	JF1	Front Panel Control header
41	JL1	Chassis Intrusion header
29	JLED	Power LED Indicator header
37	JPW1	24-pin ATX main power connector (required)
36	JPW2	+12V 8-pin CPU power connector (required)
1	KB/Mouse	Keyboard/mouse connectors
8,9	LAN1~LAN2,	Gigabit Ethernet (RJ45) ports (LAN1/LAN2)
21	I-SATA 0~5	Serial ATA ports (X8SIL has 4 Serial ATA Ports)
2	IPMI	IPMI LAN Port (X8SIL-F Only)
35	JPI2C	PWR supply (I2C) System Management Bus
31	SPKR1	Internal speaker/buzzer
25	T-SGPIO-0/1	Serial General Purpose IO headers (for SATA)
3,20	USB0/1, USB 2/3	Backplane USB 0/1, Front panel accessible USB 2/3
19	USB 4	Type A USB Connector
18	USB 10/11	Front Panel USB header (X8SIL-F Only)
22	DOM PWR	Disk-On-Module (DOM) Power Connector
39	JTPM	Trusted Platform Module (TPM) Header
6	VGA	Onboard Video Port

X8SIL/X8SIL-F/X8SIL-V LED Indicators				
Number	LED	Description	Color/State	Status
26	LE4	Onboard Standby PWR LED	Green: Solid on	PWR On
15	LE7	IPMI Heartbeat LED (X8SIL-F	Yellow: Blinking	IPMI: Normal

Motherboard Features

CPU	Single Intel Xeon 3400 series processor in an LGA1156 socket.		
Memory	Four (4) 240-pin, DDR3 SDRAM DIMM sockets with support for up to 16GB of UDIMM or up to 32GB of RDIMM memory (ECC/DDR3 1333/1066/800 MHz memory only.)		
	Supports dual-channel memory bus		
	DIMM sizes		
	UDIMM	1 GB, 2 GB, and 4GB	
	RDIMM	1 GB, 2GB, 4GB, and 8GB	
Chipset	Intel 3420 Chipset (X8SIL-F/X8SIL-V)		
	Intel 3400 Chipset (X8SIL)		
Expansion Slots	Two (2) PCI Express 2.0 (x8) slot		
	One (1) PCI Express x4 (x8) slot		
	One (1) 32-bit PCI 33MHz slot		
Integrated Graphics	Matrox G200eW		

Network Connections	Two Intel 82574L Gigabit (10/100/1000 Mb/s) Ethernet Controllers for LAN 1 and LAN 2 ports.	
	Two (2) RJ-45 Rear IO Panel Connectors with Link and Activity LEDs	
	Single Realtek RTL8201N PHY to support IPMI 2.0 (X8SIL-F Only)	
I/O Devices	SATA Connections (X8SIL-F/X8SIL-V Only)	
	SATA Ports	Six (6)
	RAID (Windows)	RAID 0, 1, 5, 10
	RAID (Linux)	RAID 0, 1, 10
	SATA Connections (X8SIL Only)	
	SATA Ports	Four (4)
	Integrated IPMI 2.0 (X8SIL-F Only)	
	IPMI 2.0 supported by the WPCM450 Server BMC	
	Floppy Disk Drive	
	One (1) floppy drive interface (up to 1.44 MB)	
	USB Devices (X8SIL Only)	
	Two (2) USB ports on the rear IO panel	
	Two (2) USB header connectors for front access	
	One (1) Type A internal connector	
I/O Devices (Continued)	USB Devices (X8SIL-F/X8SIL-V Only)	
	Two (2) USB ports on the rear IO panel	
	Four (4) USB header connectors for front access	
	One (1) Type A internal connector	
	Keyboard/Mouse	
	PS/2 Keyboard/Mouse ports on the I/O backplane	
	Serial (COM) Ports	
	Two (2) Fast UART 16550 Connections: one 9-pin RS-232 port and one header	
	Super I/O	
	Winbond Super I/O 83627DHG-P	
BIOS	32 Mb SPI AMI BIOS SM Flash BIOS	
	DMI 2.3, PCI 2.3, ACPI 1.0/2.0/3.0, USB Keyboard and SMBIOS 2.5	
Power Configuration	ACPI/ACPM Power Management	
	Main switch override mechanism	
	Keyboard Wake-up from Soft-Off	
	Internal/External modem ring-on	
	Power-on mode for AC power recovery	
PC Health Monitoring	CPU Monitoring	
	Onboard voltage monitors for CPU core, +3.3V, +5V, +/-12V, +3.3V Stdby, +5V Stdby, VBAT, HT, Memory, Chipset	
	CPU 3-Phase switching voltage regulator	

	CPU/System overheat LED and control
	CPU Thermal Trip support
	Thermal Monitor 2 (TM2) support
	Fan Control
	Fan status monitoring with firmware 4-pin (Pulse Width Modulation) fan speed control
	Low noise fan speed control
System Management	PECI (Platform Environment Configuration Interface) 2.0 support
	System resource alert via Supero Doctor III
	SuperoDoctor III, Watch Dog, NMI
	Chassis Intrusion Header and Detection
CD Utilities	BIOS flash upgrade utility
	Drivers and software for Intel 3400/3420 chipset utilities
Other	ROHS 6/6 (Full Compliance, Lead Free)
Dimensions	Micro ATX form factor, 9.6" x 9.6"

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BLOCK DIAGRAM RoHS 6/6

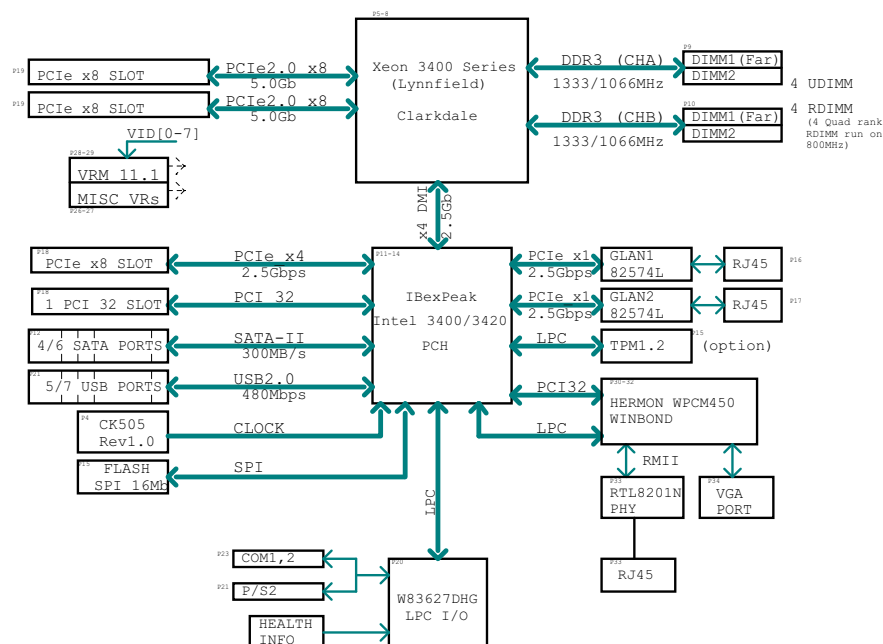


Figure 1.2 Block diagram

Note: This is a general block diagram and may not exactly represent the features on your motherboard. See the Motherboard Features pages for the actual specifications of each motherboard.

A.2 Chipset Overview

The X8SIL/X8SIL-F/X8SIL-V supports the Intel Xeon 3400 processor series. Built upon the functionality and the capability of the single-chip Intel 3400 chipset, the X8SIL/X8SIL-F/X8SIL-V motherboard provides the performance and feature set required for single-processor-based systems with configuration options optimized for entry-level server platforms. The high-speed Direct Media Interface (DMI) featured in the Intel 3400/3420 chipset enables the X8SIL/X8SIL-F/X8SIL-V motherboard to offer a high-speed Direct Media Interface (DMI) for chip-to-chip true isochronous communication with the processor. This feature allows the X8SIL/X8SIL-F/X8SIL-V to achieve up to 10 Gb/s of software-transparent data transfer on each direction, achieving better performance than comparable systems. The X8SIL/X8SIL-F/X8SIL-V also features a TCO timer (to enable the system to recover from a software/hardware lock), ECC Error Reporting, Function Disable and Intruder Detect.

Intel 3400/3420 Chipset Features

- Direct Media Interface (up to 10 Gb/s transfer, Full Duplex)
- Intel Matrix Storage Technology and Intel Rapid Storage Technology
- Dual NAND Interface
- Intel I/O Virtualization (VT-d) Support
- Intel Trusted Execution Technology Support
- PCI Express 2.0 Interface (up to 5.0 GT/s)
- SATA Controller (up to 3G/s)
- Advanced Host Controller Interface (AHCI)

A.3 PC Health Monitoring

This section describes the PC health monitoring features of the X8SIL/X8SIL-F/X8SIL-V. These features are supported by an onboard System Hardware Monitor chip.

Recovery from AC Power Loss

BIOS provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must hit the power switch to turn it back on) or for it to automatically return to a power on state. See the Power Lost Control setting in the BIOS chapter of this manual to change this setting. The default setting is Last State.

Onboard Voltage Monitoring

The onboard voltage monitor will scan the following voltages continuously: CPU core, +3.3V, +5V, +/-12V, +3.3V Stdby, +5V Stdby, VBAT, HT, Memory, Chipset. Once a voltage becomes unstable, it will give a warning or send an error message to the screen. Users can adjust the voltage thresholds to define the sensitivity of the voltage monitor by using SD III.

Fan Status Monitor with Software

PC health monitoring can check the RPM status of the cooling fans via Supero Doctor III.

CPU Overheat LED and Control

This feature is available when the user enables the CPU overheat warning feature in the BIOS. This allows the user to define an overheat temperature. When this temperature reaches this

pre-defined overheat threshold, the CPU thermal trip feature will be activated and it will send a signal to the buzzer and, at the same time, the CPU speed will be decreased.

A.4 Power Configuration Settings

This section describes the features of your motherboard that deal with power and power settings.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start blinking to indicate that the CPU is in the suspend mode. When the user presses any key, the CPU will wake-up and the LED indicator will automatically stop blinking and remain on.

BIOS Support for USB Keyboard

If the USB keyboard is the only keyboard in the system, it will function like a normal keyboard during system boot-up.

Main Switch Override Mechanism

When an ATX power supply is used, the power button can function as a system suspend button. When the user presses the power button, the system will enter a SoftOff state. The monitor will be suspended and the hard drive will spin down. Pressing the power button again to wake-up the whole system. During the SoftOff state, the ATX power supply provides power the system to keep the required circuitry "alive". In case the system malfunctions and you want to turn off the power, just press and hold the power button for 4 seconds. The power will turn off and no power will be provided to the motherboard.

A.5 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates of 1 GHz and faster.

The X8SIL/X8SIL-F/X8SIL-V accommodates ATX12V standard power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. A 2-Amp of current supply on a 5V Standby rail is strongly recommended.

It is strongly recommended that you use a high quality power supply that meets ATX12V standard power supply Specification 1.1 or above. It is also required that the 12V 8-pin power connection (JPW2) be used for adequate power supply. In areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

The DLA Series does not have a function to determine pre-failure of a power supply. The power supply will have the LED to show it is "OK" or "failed" by showing the color green or amber for the respective status. When the power supply fails, it shows amber, when it is functioning correctly it shows green.

A.6 Super I/O

The disk drive adapter functions of the Super I/O chip include a floppy disk drive controller that is compatible with industry standard 82077/765, a data separator, write pre-compensation circuitry, decode logic, data rate selection, a clock generator, drive interface control logic and interrupt and DMA logic. The wide range of functions integrated onto the Super I/O greatly reduces the number of components required for interfacing with floppy disk

drives. The Super I/O supports two 360 K, 720 K, 1.2 M, 1.44 M or 2.88 M disk drives and data transfer rates of 250 Kb/s, 500 Kb/s or 1 Mb/s.

It also provides two high-speed, 16550-compatible serial communication ports (UARTs). Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system. Both UARTs provide legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O provides functions that comply with ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through a SMI or SCI function pin. It also features auto power management to reduce power consumption.

A.7 iSCSI Support

The X8SIL/X8SIL-F/X8SIL-V motherboard supports the iSCSI Internet Protocol. iSCSI is an IP networking standard used to link and manage data storage, and transfer data across the internet and private intranets through long distance. iSCSI can be used to transmit data over local area networks (LANs), wide area networks (WANs), or the Internet. It can enable location-independent data storage and retrieval.

iSCSI allow clients to issue SCSI commands to remote SCSI storage devices and allow data centers to consolidate remote storage devices into storage arrays, giving an illusion of locally-attached disks to host servers. Unlike fiber-optic networks that require special cabling, iSCSI can run over long distance using existing networks.

For the X8SIL/X8SIL-F/X8SIL-V motherboard, iSCSI is supported on LAN 1. This can be enabled through the BIOS: Advanced => PCI/PnP Configuration => Onboard LAN1 Option ROM Select.

A.8 Overview of the Nuvoton BMC Controller

The Nuvoton WPCM150 is a combined Baseboard Management Controller and 2D/VGA-compatible Graphics Core with PCI interface, Virtual Media and Keyboard, and a Keyboard/Video/Mouse Redirection (KVMR) module.

The WPCM150 interfaces with the host system via a PCI interface to communicate with the Graphics core. It supports USB 2.0 and 1.1 for remote keyboard/mouse/virtual media emulation. It also provides an LPC interface to control Super I/O functions and connects to the network via an external Ethernet PHY module or shared NCSI connections.

The Nuvoton BMC communicates with onboard components via six SMBus interfaces, fan control, Platform Environment Control Interface (PECI) buses, and General Purpose I/O (T-SGPIO) ports.

It also includes the following features:

- One X-Bus parallel interface for expansion I/O connections
- Three ADC inputs, Analog and Digital Video outputs
- Two serial for boundary scan and debug

There are two different versions of the Nuvoton BMC chip that are used in this product series. The Nuvoton WPCM150 (Manufacturer P/N WPCM150GA0BX5) which includes all of the features above, is the chip installed in the X8SIL motherboard. Another version, the Nuvoton WPCM450 (Manufacturer P/N WPCM450RA0BX) also has all the features as described above plus IPMI 2.0 support. This particular chip is installed in the X8SIL-F and X8SIL-V models. However, IPMI is supported only on the X8SIL-F motherboard.

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